MiLAN
TECHNOLOGY

8-Port 10/100/1000 + 1 MiniGBIC Gigabit

Ethernet Smart Workgroup Switch

MIL-S8001TG

User Guide

Regulatory Approval
- FCC Class A
- UL 1950
- CSA C22.2 No. 950
- EN60950
- CE
- EN55022 Class A
- EN55024

Canadian EMI Notice
This Class A digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe A respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

European Notice
Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community Compliance with these directives imply conformity to the following European Norms:

EN55022 (CISPR 22) - Radio Frequency Interference
EN61000-X - Electromagnetic Immunity
EN60950 (IEC950) - Product Safety

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Table of Contents

1. Introduction

The MIL-S8001TG switch is a multi-port switch that can be used to build high-performance switched workgroup networks. This switch is a store-and-forward device that offers low latency for high-speed networking. The switch is targeted at workgroup, department or backbone computing environments.

Figure 1-1. The MIL-S8001TG switch

The 8-Port 10/100/1000 + 1 MiniGBIC Gigabit Ethernet Smart Workgroup Switch features a "store-and-forward" switching scheme. This allows the switch to auto-learn and store source addresses in a 4K-entry MAC address table.

The MIL-S8001TG switch has 8 auto-sensing 10/100/1000 Base-TX RJ-45 ports plus one MINI GBIC slot which enables long-distance connection.

Features

- Conforms to IEEE 802.3 10BASE-T,IEEE 802.3u 100BASE-TX,IEEE 802.3ab 1000BASE-T,IEEE 802.3z gigabit fiber and IEEE 802.3x
- 8 x 10/100/1000 Base-TX RJ-45 ports
- 1 MINI GBIC socket for MINI GBIC Fiber transceiver
- Auto-MDIX on all ports and N-Way Auto-Negotiation
- 16 Gbps back-plane
- Quality of service (QoS) supported
- IEEE802.3x Flow control
  - ➢ Back pressure half duplex (10/100Mbps)
  - ➢ Flow control full duplex (10/100/1000Mbps)
- Store-and-Forward switching architecture
- 1.5Mbits memory buffer
- Supports 9.5KB JUMBO packet
- Supports Port-based VLAN and 4K 802.1Q Tag VLAN
- Supports Broadcast Storm Filtering
- 4K MAC address table
- Optional 19" rack mount kit
- 10" size for desktop and internal power

Software Features

VLAN	Port Based VLAN, support up to 8 groups 4K IEEE802.1Q Tag VLAN
QOS	2 Types of quality of service: 1.Port based priority. 2. 802.1p/TOS priority tag
Priority Queue	System provide 4 queues for High and Low priority. Queue Ratio: High:Middle:Low:Lowest =8:4:2:1
Broadcast Storm filter	Disable or Enable

Package Contents

Unpack the contents of the package and verify them against the checklist below.

- MIL-S8001TG Switch
- Power Cord
- Four Rubber Feet
- RS-232 cable
- User Guide
- Warranty Card

If any item is missing or damaged, please contact your local dealer for service.

Ethernet Switching Technology

Ethernet Switching Technology dramatically boosted the total bandwidth of a network, eliminated congestion problems inherent with CSMA/CD (Carrier Sense multiple access with Collision Detection) protocol, and greatly reduced unnecessary transmissions.

This revolutionized networking. First, by allowing two-way, simultaneous transmissions over the same port (Full-duplex), which essentially doubled the bandwidth. Second, by reducing the collision domain to a single switch-port, which eliminated the need for carrier sensing. Third, by using the store-and-forward technology's approach of inspecting each packet to intercept corrupt or redundant data, switching eliminated unnecessary transmission that slow the network. By employing address learning, which replaced the inefficient receiving port.

Auto-negotiation regulates the speed and duplex of each port, based on the capability of both devices. Flow-control allows transmission from a 100Mbps node to a 10Mbps node without loss of data. Auto-negotiation and flow-control may require disablement for some networking operations involves legacy equipment. Disabling the auto-negotiation is accomplished by fixing the speed or duplex of a port.

Ethernet Switching Technology supplied higher performance at costs lower than other solutions. Wider bandwidth, no congestion, and the reduction in traffic is why switching is replacing expensive routers and inefficient hubs as the ultimate networking solution. Switching brought a whole new way of thinking to networking.

Management Methods

The MIL-S8001TG switch series supports Console Management methods

Console Management is done through the RS-232 Console Port. Managing the switch in this method requires a direct connection between a PC and the switch.

2.
Hardware Description

Front Panel

The Front Panel of the MIL-S8001TG switch consists of eight
10/100/1000Base-TX RJ-45 ports, one MINI GBIC slot, one LED-Indicator for
Power, three LED-Indicators (100/1000, LNK/ACT, FDX/COL) for each UTP
port, and two LED-Indicators (LNK/ACT) for the Mini-GBIC slot.

Figure 2-1. Front panel for MIL-S8001TG

RJ-45 Ports (Auto MDI/MDIX): 8x 10/100/1000 N-way auto-sensing for
10Base-T, 100Base-TX or 1000Base-T connections.
[In general, **MDI** means connecting to another Hub or Switch while **MDIX**
means connecting to a workstation or PC. Therefore, **Auto MDI/MDIX** means
that you can connect to another Switch or workstation without changing
non-crossover or crossover cabling.]

Mini GBIC slot: The optional MINI GBIC port is shared with port 1 and
supports 3.3V. There are 2 LED indicators for the Mini GBIC port – LNK and
ACT.

LED Indicators

The LED Indicators give real-time information of systematic operation status. The following table provides descriptions of LED statuses and their meaning.
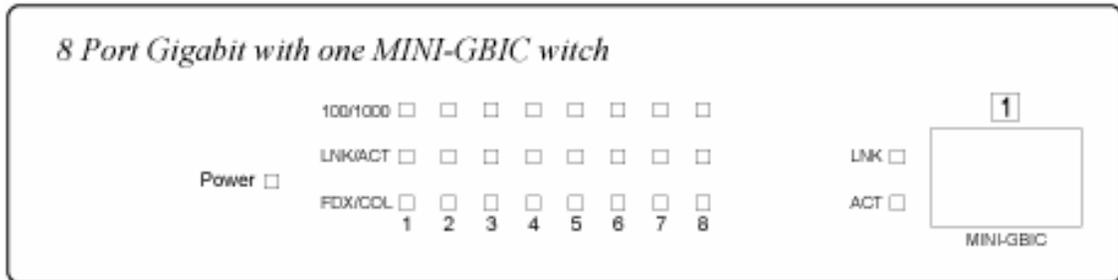
Figure 2-2. LED Indicators

LED	Status	Color	Description
Power	On	Green	Power On
100/1000	On	Green	The port is operating at the speed of 1000Mbps.
	On	Orange	The port is operating at the speed of 100Mbps.
	Off		The port is operating at the speed of 10Mbps mode or no device is attached.
LNK /ACT	On	Green	The port is successfully connecting with the device.
	Blinks	Green	The port is receiving or transmitting data.
	Off		No device attached.

8

FDX /COL	On	Orange	The port is operating in Full-duplex mode.
	Blinks	Orange	Collision of Packets is occurring in the port.
	Off		The port is operating in Half-duplex mode or no device attached.
LNK (MINI GBIC)	On	Green	The port is successfully connecting with the device.
ACT (MINI GBIC)	Blinks	Green	The port is receiving or transmitting data.

Table 2-1. Description of LED Indicators

Rear Panel

The 3-pronged power plug and console port are located at the rear panel of the MIL-S8001TG as shown in Figure 2-3. The switch will work with AC in the range 100-240V AC, 50-60Hz.

Figure 2-3. The Rear Panel of MIL-S8001TG switch

Desktop Installation

Set the switch on a sufficiently large flat space with a power outlet nearby. The surface where you put your switch should be clean, smooth, level and sturdy. Provide enough clearance around the switch to allow attachment of cables, power cord and air circulation.

Attaching Rubber Feet

A. Make sure the mounting surface on the bottom of the switch is grease and dust free.
B. Remove adhesive backing from the rubber feet.
C. Apply the rubber feet to each corner on the bottom of the Switch.

These footpads can prevent the switch from shock/vibration.

Power On

Connect the power cord to the power socket on the rear panel of the switch. Connect the other end of the cord to an appropriate power outlet. The internal power supply in the switch works with AC in the voltage range of 100-240VAC and frequency 50~60Hz.

Check the power indicator on the front panel to see if power is properly supplied.

3.
Network Application

This section provides you a few samples of network topology in witch the Switch is used. In general, the 8 Gigabit Copper with one MINI GBIC Smart switch is designed as a segment switch. That is, with its address table (4000 MAC address) and high performance, it is ideal for interconnecting networking segments.

PC, workstations, and servers can communicate each other by directly connecting with 8 Gigabit Copper with one MINI GBIC Smart switch. The switch automatically learns nodes address, which are subsequently used to filter and forward all traffic based on the destination address.

By using Uplink port, the Switch can connect with another switch or hub to interconnect other small-switched workgroups to form a larger switched network. Meanwhile, you can also use fiber ports to connect switches. The distance between two switches via fiber cable can be up to 220 or 550 meters (multi-mode fiber) or 60 kilometers (single-mode fiber).

Small Workgroup

The MIL-S8001TG switch can be used as a standalone switch to which personal computers, servers, and printer servers are directly connected to form a small workgroup.

Segment Bridge

For enterprise networks where large data broadcasts are constantly processed, this switch is an ideal solution for department users to connect to the corporate backbone.

In the illustration below, two Ethernet switches with PCs, print server, and local server attached, are both connect to the switch. All the devices in this network can communicate with each other through the Switch. Connecting servers to the Switch allow other users to access the data on server.

In the below illustration, two 8 Gigabit Copper with one MINI GBIC Smart switch are used to interconnect two small workgroups. By using fiber ports to connect switches, the distance between two switches via fiber cable can be up to 2Km or 30Km (SC single-mode fiber connector).

4.
Console Management

Connecting a Terminal or PC to the Console Port

Console management involves the administration of the switch via a direct connection to the RS-232 console port. This port is a female DB-9 connector. From the main menu of the console program, the user has access to manage the functions of the switch.

Use the supplied RS-232 cable to connect a terminal or PC to the console port. The terminal or PC to be connected must support the terminal emulation program.

After the connection between the Switch and PC is finished, turn on the PC and run a **terminal emulation program** or **Hyper Terminal** and configure its **communication parameters** to match the following default characteristics of the console port:

Baud Rate: 9600 bps

Data Bits: 8

Parity: none

Stop Bit: 1

Flow Control: None
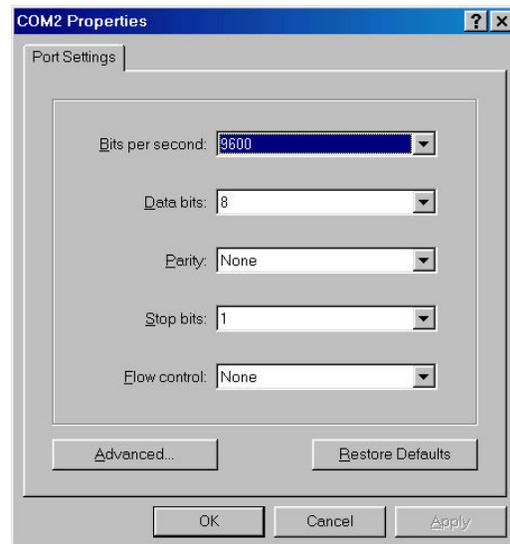
Figure 4-1. The settings of communication parameters

After you have entered the parameter settings, press the Enter Key and the Main Menu of console management appears.

4-1. Main Menu

There are five items for selection as follows.

```
GE-8F1GBS Switch

Port State Initial ........ OK.
VLAN Table Initial ........ OK.
QOS Control Initial ... OK.


********************* Main Menu *********************
[V]: VLAN Mode
[Q]: QOS Control
[B]: Broadcast Storm Suppression
[D]: Restore to Default
[R]: Reset System

Command:
```

VLAN Mode: Configure the VLAN function.

QOS Control: Configure the QoS function.

Broadcast Storm Suppression: Enable or disable Broadcast Storm filtering function.

Restore to Default: Set the system to the default value settings.

Reset System: Restart the system.

4-2. VLAN Mode

Select VLAN Mode to access the VLAN configuration menu. The system supports two VLAN modes – 802.1Q and Port-Based VLAN.

At the Main Menu command prompt, type "**v**" or "**V**" to enter the VLAN Mode configuration interface.

```
GE-8F1GBS Switch

Port State Initial ........ OK.
VLAN Table Initial ........ OK.
QOS Control Initial ... OK.


******************** Main Menu ********************
[V]: VLAN Mode
[Q]: QOS Control
[B]: Broadcast Storm Suppression
[D]: Restore to Default
[R]: Reset System

Command: v


=================== VLAN Mode ===================
[8]: 802.1Q VLAN
[P]: Port-Based VLAN
[Q]: Previous Menu

None VLAN Mode: _
```

Previous Menu: Enter "**q**" or "**Q**" and the command prompt to exit the current interface.

4-2-1. 802.1Q VLAN Configuration

After selecting VLAN mode from the Main Menu, enter the 802.1Q VLAN configuration interface by entering **"8"** at the command prompt.

```
[B]: Broadcast Storm Suppression
[D]: Restore to Default
[R]: Reset System

Command: v


=================== VLAN Mode ===================
[8]: 802.1Q VLAN
[P]: Port-Based VLAN
[Q]: Previous Menu

None VLAN Mode: 8


=================== 802.1Q VLAN ===================
[E]: 802.1Q VLAN Enable
[D]: 802.1Q VLAN Disable
[V]: VLAN Configure
[C]: Create VLAN Group
[S]: VLAN Status
[Q]: Previous Menu

QVLAN OFF:
```

Previous Menu: Enter "**q**" or "**Q**" and the command prompt to exit the current interface.

4-2-1-1. Enabling 802.1Q VLAN

Prior to configuring 802.1Q VLAN, the 802.1Q VLAN function must be enabled. Enter "**e**" or "**E**" at the 802.1Q VLAN menu command prompt to enable the 802.1Q VLAN function. To disable the 802.1Q VLAN function, enter "**d**" or "**D**" at the command prompt.

```
==================== 802.1Q VLAN ====================
[E]: 802.1Q VLAN Enable
[D]: 802.1Q VLAN Disable
[V]: VLAN Configure
[C]: Create VLAN Group
[S]: VLAN Status
[Q]: Previous Menu

QVLAN OFF: e
802.1Q Enable ... OK.
```

Previous Menu: Enter "**q**" or "**Q**" and the command prompt to exit the current interface.

4-2-1-2. VLAN Configuration

The Port VID can be configured for each port. Enter "**v**" or "**V**" at the 802.1Q
VLAN command prompt to the access the VLAN configuration interface. Enter
the port number to be configured. Next, enter the PVID number to be assigned
to the selected port. The PVID range is from 1 to 512.

```
=================== 802.1Q VLAN ===================
[E]: 802.1Q VLAN Enable
[D]: 802.1Q VLAN Disable
[V]: VLAN Configure
[C]: Create VLAN Group
[S]: VLAN Status
[Q]: Previous Menu

QVLAN ON: v


=================== VLAN Configure ===================
[1]: Port 1 PVID
[2]: Port 2 PVID
[3]: Port 3 PVID
[4]: Port 4 PVID
[5]: Port 5 PVID
[6]: Port 6 PVID
[7]: Port 7 PVID
[8]: Port 8 PVID
[Q]: Previous Menu

Command: 1
------------------- Port PVID Setting -------------------
[1..512]: PVID

Command: 3
Port 1 Setting...OK
```

Previous Menu: Enter "**q**" or "**Q**" and the command prompt to exit the current
interface.

4-2-1-3. Create VLAN Group

Enter "**c**" or "**C**" at the command prompt to access the Create VLAN Group configuration interface.

VLAN group ID: Enter the VLAN Group ID at the prompt.

Add VLAN group member: Enter "**m**" or "**M**" at the command prompt to add the port to the VLAN group, use the command "**+port number**" to add the port or enter "**+A**" to add all ports. To remove the port from VLAN group, use the command "**-port number**" or enter "**-A**" to remove all ports from group. A maximum of 8 ports can be added to a VLAN group. After the port(s) are added the VLAN group, enter command "**q**" or "**Q**" to exit the configuration interface.

```
=================== 802.1Q VLAN ===================
[E]: 802.1Q VLAN Enable
[D]: 802.1Q VLAN Disable
[V]: VLAN Configure
[C]: Create VLAN Group
[S]: VLAN Status
[Q]: Previous Menu

QVLAN ON: c

=================== Create VLAN Group ===================
[1..512]: VLAN Group ID:
[Q]: Previous Menu

Command: 1
VLAN Group ID...OK


=================== VLAN Configure ===================
[M]: VLAN Domain Member
[T]: Tag/Untagged Setting
[Q]: Previous Menu

Command: m
------------------- VLAN Domain Member -------------------
[+1..+08]: Insert VLAN Domain Member
[-1..-08]: Delete VLAN Domain Member
[Q]: Previous Menu

Member [..]: +1
Member [01]: +2
Member [01,02]: +3
Member [01,02,03]: q
```

Tag/Untagged Setting: Enter "**t**" or "**T**" at the VLAN Configure command prompt to enter Tag/Untagged Setting configuration interface. Use the command "**+port number**" to set the port as the Tagged status. Use the command "**-port number**" to set the port to the Untagged status. After configuration, enter command "**q**" or "**Q**" to exit the interface.

```
=================== VLAN Configure ===================
[M]: VLAN Domain Member
[T]: Tag/Untagged Setting
[Q]: Previous Menu

Command: t


------------------- Tag/Untagged Setting -------------------
[+1..+08]: Insert Untagged Port
[-1..-08]: Insert Tagged Port
[Q]: Previous Menu

Command : +1

Untagged Port Setting...OK.

Command : +2

Untagged Port Setting...OK.

Command :
```

Previous Menu: Enter "**q**" or "**Q**" and the command prompt to exit the current interface.

4-2-1-4. VLAN Status

VLAN Group Information can be viewed by entering "**s**" or "**S**" at the 802.1Q VLAN menu command prompt to access the VLAN Status interface. Enter the VLAN group ID to display the VLAN status.

```
==================== 802.1Q VLAN ====================
[E]: 802.1Q VLAN Enable
[D]: 802.1Q VLAN Disable
[V]: VLAN Configure
[C]: Create VLAN Group
[S]: VLAN Status
[Q]: Previous Menu

QVLAN ON: s
------------------- Vlan Status -------------------
[1..512]: Select VLAN ID:
[Q]: Previous Menu

Command: 1

The Port 1 -> PVID   3  | VID   1 | Untag |
The Port 2 -> PVID   4  | VID   1 | Untag |
The Port 3 -> PVID   1  | VID   1 | Untag |
The Port 4 -> PVID   1  | VID   1 | Tag   |
The Port 5 -> PVID   1  | VID   1 | Tag   |
The Port 6 -> PVID   1  | VID   1 | Tag   |
The Port 7 -> PVID   1  | VID   1 | Tag   |
The Port 8 -> PVID   1  | VID   1 | Tag   |
```

Previous Menu: Enter "**q**" or "**Q**" and the command prompt to exit the current interface.

4-2-2. Port-Based VLAN Configuration

At the VLAN mode menu interface, enter "**p**" or "**P**" at the command prompt to access the Port-Based VLAN mode configuration interface.

```
==================== VLAN Mode ====================
[8]: 802.1Q VLAN
[P]: Port-Based VLAN
[Q]: Previous Menu

802.1Q VLAN Mode: p


==================== Port-Based VLAN ====================
[1..8]: Port-Base VLAN Config
[L]: List VLAN Table
[R]: Restore to Default
[Q]: Previous Menu

Command: _
```

Previous Menu: Enter "**q**" or "**Q**" and the command prompt to exit the current interface.

4-2-2-1. Port-Based VLAN Group Configuration

A maximum of 8 VLAN groups can be configured. The default VLAN group is VLAN 1.

1. Enter the group number to configure a VLAN group. For example: enter "**1**" for VLAN group 1.
2. To add a port to a VLAN group, use the command "**+port number**" to add the port or enter "**+A**" to add all ports. To remove a port from a VLAN group, use the command "**-port number**" or enter "**-A**" to remove all ports from the group. In VLAN group 1, the default members are port 1 to port 8.   A maximum of 8 ports can be added to a VLAN Group.
3.   Enter "**s**" or "**S**" at the command promt to save the configuration.
4. To view the VLAN group table, enter "**I**" or "**L**".

```
[D]: Restore to Default
[R]: Reset System

Command: v


=================== VLAN Table ===================
[1..8]: VLAN Table Config
[L]: List VLAN Table
[R]: Restore to Default
[Q]: Previous Menu

Command: 1


-------------------- VLAN-01 --------------------
[+1..+08]: Insert Port
[-1..-08]: Delete Port
[+A]: Insert All
[-A]: Delete All
[S]: Save Port Setting
[Q]: Previous Menu

VLAN-01 [01,02,03,04,05,06,07,08]: _
```

Previous Menu: Enter "**q**" or "**Q**" and the command prompt to exit the current interface.

4-3. QoS Control

Select QoS Control to access the QoS configuration menu.   The system
supports two methods of QoS control – Port-Based and 802.1P/TOS.

From the Main Menu, enter "**q**" or "**Q**" to select QoS Control to enable or
disable the Qos function and set the high/low queue priority ratio.

```
******************** Main Menu ********************
[V]: VLAN Mode
[Q]: QOS Control
[B]: Broadcast Storm Suppression
[D]: Restore to Default
[R]: Reset System

Command: q


==================== QOS Control ====================
[P]: Port-Based Enable
[E]: 802.1P/TOS Enable
[D]: QOS Disable
[M]: Priority ID Map
[S]: Priority ID Map Status
[R]: Restore to Default
[Q]: Previous Menu

QOS OFF: _
```

Port-Based Enable: Enter "**p**" or "**P**" at the command prompt to enable
Port-Based function.

802.1P/TOS Enable: Enter "**e**" or "**E**" at the command prompt to enable
802.1P/TOS function.

> **Note:** Port-Based or 802.1P/TOS function must be anabled prior to
> configuring the Priority ID Map function.

QoS Disable: To disable QoS control, enter "**d**" or "**D**" at the command
prompt.

Priority ID Map: To configure the QoS control high/low weight setting, enter "**m**" or "**M**" at the command prompt. Next, enter the selection number, for port priority setting. There are four-priority levels – **High**, **Middle**, **Lo**w, and **Lowest** priority level.

    High Priority: Enter "**h**" or "**H**" to enable the highest port priority setting.

    Middle Priority: Enter "**m**" or "**M**" to enable the highest port priority setting.

    Low Priority: Enter "**l**" or "**L**" t to enable the highest port priority setting.

    Lowest Priority: Enter "**s**" or "**S**" to enable the highest port priority setting.

```
=================== QOS Control ===================
[P]: Port-Based Enable
[E]: 802.1P/TOS Enable
[D]: QOS Disable
[M]: Priority ID Map
[S]: Priority ID Map Status
[R]: Restore to Default
[Q]: Previous Menu

QOS OFF: m
------------------ Priority ID Map ------------------
[0]: Priority 0
[1]: Priority 1
[2]: Priority 2
[3]: Priority 3
[4]: Priority 4
[5]: Priority 5
[6]: Priority 6
[7]: Priority 7
[Q]: Previous Menu


Command: 0

------------------ Queue Mode Select ------------------
[H]: The High Priority
[M]: The Middle Priority
[L]: The Low Priority
[S]: The Lowest Priority
[Q]: Previous Menu


Command: m
The Middle Priority ... OK.
```

Priority ID Map Status: To display the current priority level setting for each port, enter "**s**" or "**S**" at the command propmt. If the priority level is not configured, the priority IP mapping will be undefined.

```
=================== QOS Control ===================
[P]: Port-Based Enable
[E]: 802.1P/TOS Enable
[D]: QOS Disable
[M]: Priority ID Map
[S]: Priority ID Map Status
[R]: Restore to Default
[Q]: Previous Menu

QOS OFF: s
------------------ Priority ID Map Status ------------------
[D]: Display Priority ID Map
[Q]: Previous Menu

Command: d
The Priority 0 -> The Low Priority
The Priority 1 -> The Middle Priority
The Priority 2 -> The Middle Priority
The Priority 3 -> The High Priority
The Priority 4 -> The High Priority
The Priority 5 -> The High Priority
The Priority 6 -> The High Priority
The Priority 7 -> The High Priority
```

Restore to Default: Enter "**r**" or "**R**" at the command prompt to return the QoS control values back to their defaults.

Previous Menu: Enter "**q**" or "**Q**" and the command prompt to exit the current interface.

4-4. Broadcast Storm Suppression

Enable or disable the Broadcast storm function. In the main menu command prompt, enter command "**b**" or "**B**" to enter the Broadcast Storm Suppression configuration interface. In the command prompt sign, enter command "**e**" or "**E**" to enable the broadcast storm function. To disable the broadcast storm function, enter command "**d**" or "**D**".

```
******************** Main Menu ********************
[V]: VLAN Mode
[Q]: QOS Control
[T]: Trunk Mode
[B]: Broadcast Storm Suppression
[D]: Restore to Default
[R]: Reset System

Command: b


==================== Broadcast Storm Suppression ====================
[E]: Broadcast Storm Enable
[D]: Broadcast Storm Disable
[Q]: Previous Menu

BS OFF: e
Broadcast Storm Enable ... OK.


==================== Broadcast Storm Suppression ====================
[E]: Broadcast Storm Enable
[D]: Broadcast Storm Disable
[Q]: Previous Menu

BS ON: _
```

Previous Menu: Enter "**q**" or "**Q**" and the command prompt to exit the current interface.

4-5. Restore to Default

Enter "**d**" or "**D**" at the main menu command prompt to return the system to the default values.

4-6. Reset System

Enter "**r**" or "**R**" at the main menu command prompt to restart the system.
Note: The current configuration will remain after the system has been restarted.

5. Troubleshooting

This section is intended to help you solve some common problems encountered while using the MIL-S8001TG switch.

Incorrect connections

The switch port can auto detect straight or crossover cable when you link switch with other Ethernet device. For the RJ-45 connector should use correct UTP or STP cable, 10/100Mbps port use 2 pairs twisted cable and Gigabit 1000T port use 4 pairs twisted cable. If the RJ-45 connector is not correct pin on right position then the link will fail.   For fiber connection, please note that fiber cable mode and fiber module should be match.

■ Faulty or loose cables

Look for loose or obviously faulty connections. If they appear to be OK, make sure the connections are snug. If that does not correct the problem, try different cables.

■ Non-standard cables

Non-standard and miss-wired cables may cause numerous network collisions and other network problem.   This can seriously impair network performance. A category-5 cable tester is a recommended tool for every network installation.

■ **Improper Network Topologies**

It is important to make sure that you have a valid network topology. Common topology faults include excessive cable length and too many repeaters or hubs between end nodes. In addition, you should make sure that your network topology contains no data path loops. Between any two ends nodes, there should be only one active cabling path at any time. Data path loops will cause broadcast storms that will severely impact your network performance.

Diagnosing LED Indicators

The switch can be easily monitored through panel indicators to assist in identifying problems.

If the power indicator does turn on when the power cord is plugged in, you may have a problem with the power outlet or power cord. However, if the switch powers off after running for a while check for loose power connections, power losses or surges at power outlet. If you still cannot resolve the problem, contact your local dealer for assistance.

■ **Cabling**

RJ-45 ports: Use unshielded twisted-pair (UTP) or shield twisted-pair (STP) cable for RJ-45 connections: 100Ω Category 3, 4 or 5 cable for 10Mbps connections or 100Ω Category 5 cable for 100Mbps connections. Be sure that the length of any twisted-pair connection does not exceed 100 meters (328 feet). Gigabit ports should use Cat-5 or Cat-5e cable for 1000Mbps connections and the length should not exceed 100 meters.

6.
Technical Specifications

This section provides the specifications of the MIL-S8001TG switch product.

Standard	IEEE 802.3 10BASE-T Ethernet, IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Copper IEEE 802.3z Gigabit fiber IEEE802.3x Flow Control and Back-pressure IEEE802.1p Quality of Service IEEE802.1Q Tag VLAN
Protocol	CSMA/CD
Technology	Store-and-Forward switching architecture
Transfer Rate	14,880 pps for 10Mbps 148,800 pps for 100Mbps 1,488,000 pps for 1000Mbps
LED Indicators	Per unit: Power Per port: 100/1000 (Orange /Green), Link/Activity (Green), Full duplex/ Collision (Orange) MINI-GBIC: Link, Activity (Green)
Connector	8 Gigabit Copper: RJ-45, Auto-MDI/MDI-X for all port

	MINI GBIC: 3.3V MINI GBIC slot shared with port #1
Back-plane	16Gbps
MAC address	4K Mac with Auto Learning
Memory	1.5Mbits for packet buffer
Dimensions	250mm x 132mm x 37mm (L x W x H)
Power Supply	Input: AC 100-240V, 50/60Hz Output: 5V/4A (internal)
Power Consumption	22 Watt (maximum)
Operating Temperature	0ºC to 45ºC (32ºF to 113ºF)
Operating Humidity	10% to 90% (Non-condensing)
Storage Temperature	-10ºC to 70ºC
EMI & Safety	FCC Class A, CE, CE/ EN60950, UL, cUL

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